

Customer No.: 31561
Application No.: 10/605,082
Docket No.: 10228-US-PA

REMARKS

Present Status of the Application

The Office Action rejected claims 9 and 11-16 under 35 U. S. C. 112, the second paragraph for lacking antecedent basis. Claims 9-10, 12-13 and 15-16 were rejected under 35 U. S. C. 103(a) as being unpatentable over Ratificar et al. (U.S. Publication No. 2003/0121958) in view of Kumimatsu et al. (US Patent 5,767,564) and Nguyen et al. (US Patent 6,238,949). Claims 11 and 14 were rejected under 35 U. S. C. 103(a) as being unpatentable over Ratificar et al. in view of Kuminatsu et al. and Nguyen, and further in view of Lin (U.S. Patent No. 6,303,423). Applicants have amended claims 9 and 13. After entry of the amendments and considering the following remarks, reconsideration and withdrawal of these rejections are respectfully requested.

Discussion of the 112 rejections

Claims 9 and 11-16 stand rejected under 35 U. S. C. 112, the second paragraph for lacking antecedent basis.

Claims 9 and 13 have been amended to change "under-bump-metallurgy" to "under-bump-metallurgy (UBM)" to provide clear antecedent basis.

Withdrawal of these 112 rejections is respectfully requested.

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Discussions of the 103 rejections

Claims 9-10, 12-13 and 15-16 were rejected under 35 U. S. C. 103(a) as being unpatentable over Ratificar et al. (U.S. Publication No. 2003/0121958) in view of Kunimatsu et al. (US Patent 5,767,564) and Nguyen et al. (US Patent 6,238,949). Claims 11 and 14 were rejected under 35 U. S. C. 103(a) as being unpatentable over Ratificar et al. in view of Kuminatsu et al. and Nguyen, and further in view of Lin (U.S. Patent No. 6,303,423).

Applicants respectfully traverse the rejection: for at least the reasons set forth below.

Applicants submit that independent claims 9 and 13 patently defines over the prior references for at least the reason that the cited art fails to disclose each and every feature as claimed in the present invention.

Amended independent claims clearly recite: "a passive component with a plurality of terminal electrodes, wherein at least two terminal electrodes are respectively disposed at two ends of the passive component", and hence distinguish the present invention over the cited references.

Ratificar merely discloses forming the solder bump 155 on the UBM layer 130 over the bond pad 110 of the die 100 (Figs. 1a-1e). Then, the die 100 is attached to the substrate 170 by applying the solder paste 160 between the pad 172 of the substrate and the bump 155, as clearly shown in Fig. 2a. As taught by Ratificar, the substrate can be an interposer or a printed circuit board (PCB), while the die may be an active or passive component (paragraph [0013]).

The Office Action asserted that Ratificar's substrate 170 and elements 160/172 were

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respectively comparable to the passive component and terminal electrodes of this invention.

Applicant respectfully disagrees with this assertion.

At first, Ratificar's substrate 170 is not comparable or equivalent to the passive component of this invention to any one skilled in this field. Clearly, Ratificar simply teaches attaching the substrate 170 to the bump of the die 100, but fails to disclose *a passive component* having at least two terminal electrodes respectively disposed at two ends of the passive component, and the terminal electrodes being respectively coupled to the UBM layer through the solder blocks. Furthermore, it is unreasonable for the Office Action to consider the solder paste 160 comparable to the terminal electrode, as one skilled in the art would understand that both are constituted of different structures and materials and for different functions. Obviously, the comparable equivalent elements between Ratificar's teachings and the present invention have not been reasonable established by the Office Action.

As recited in the Office Action, Ratificar fails to teach at least two terminal electrodes respectively disposed at two ends of the passive component and using a plastic to encapsulate the die. The Office Action relied on Kunimatsu and Nguyen for teaching the lacking features and asserted that it is obvious to modify Ratificar's process with two terminal electrodes respectively disposed at two ends of the passive component as suggested by Kunimatsu, as well as using plastic package by Nguyen.

In fact, Kunimatsu discloses a decoupling capacitor 3 placed on the element 2. The decoupling capacitor 3 is constituted by stacking a silicon substrate 4, a first thin metal (electrode)

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film 5, a dielectric film 6 and a second thin metal (electrode) film 7 in order. The conductor 8 is used to connect the first metal film 5 with the alloy 3A of solder and gold, while the first metal film 5 is not electrically connected to the second metal film 7. From Kunimatsu's figures, neither the solder alloy 3A nor the solder balls 3A are disposed at two ends of the decoupling capacitor 3.

Even if considering Kunimatsu's solder alloy 3A comparable to the terminal electrode of this invention, it is unlikely to modify Ratificar's substrate with two terminal electrodes at two ends of the substrate. By doing so, the substrate can not be attached to the bump of the die, which is against the objectives of Ratificar's invention.

Moreover, the hindsight rationalization proposed by the Office Action is not once mentioned in Kunimatsu, Ratificar or Nguyen, and contrary to the teaching of these patents. The only suggestion to combine the various features from each patent comes from the applicant's specification and claims.

Because all the cited references fail to teach, suggest or disclose each and every feature of the present invention, and therefore they cannot possibly arrive at the claimed invention, as suggested by the Office Action. Accordingly, Applicants respectfully submits that independent claims 9 and 13 patently define over the prior art references, and should be allowed. For at least the same reasons, dependent claims patently define over the prior art references as well.

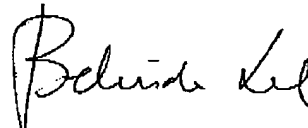
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CONCLUSION

For at least the foregoing reasons, it is believed that all the pending claims of the invention patently define over the prior art and are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,



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